

THE MEDICAL CURRICULUM GI, ASC

A SEARCHLIGHT

DIRECTED FROM THE STUDENT'S STANDPOINT

DEDICATED RESPECTFULLY TO

THE PRINCIPAL AND THE PROFESSORS OF SURGERY AND MEDICINE

BY

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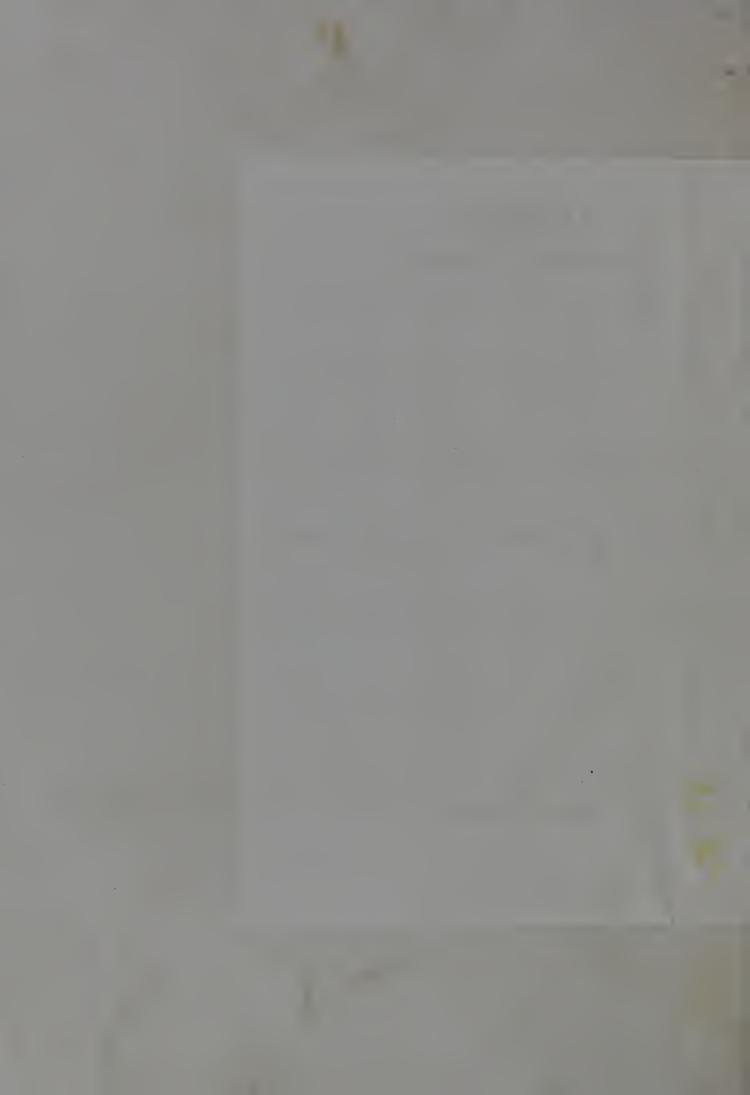
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THE MODERN GLASGOW MEDICAL SCHOOL.

This article concerns the professional training of our students and the status of our medical degree. It is not wholly academic, for the question has involved and will involve the life and death of patients. No professor has specially influenced our views. We publish the pamphlet at our own expense. Our summary endeavours to submit the attitude of the average medical student or the young practitioner who has passed his course and risen to a conception of it. We claim that in its essential features our contention would be supported by 90 per cent. of Scottish students.

Glasgow University offers, even at present, almost unrivalled facilities for the study of medicine. The school is not too large, only one-third as many men as in Edinburgh. The clinical "material" is exceptionally abundant, with three large and well-equipped hospitals available for teaching purposes, a new maternity hospital and two large fever hospitals. Individually the University professors are among the ablest in the country, and many of them have European reputations. No one has mixed with the students without discovering that foreign and colonial men are coming to Glasgow for clinical training in ever-increasing numbers. Without much trouble our College might soon become famed as the chief centre in Britain for clinical instruction. is in the hope that soon every Glasgow medical graduate will be hall-marked for his clinical abilities that the present article is penned.

While Glasgow stands high, it might stand higher: on General close examination by the students they find that the course scores only about 75 out of a possible total of 100. Notwithstanding that many able men are turned out every year, there are many (professors as well as students) who consider the present course to be anything but ideal. Strictly

Repute of Glasgow Degree.

Deficiencies of same.

speaking, indeed, there is no medical course at Glasgow at all; for instead of the student entering an "Alma Mater" he finds himself, all unconscious, in a series of departmental incubation chambers, each with an expert in charge. There is no Glasgow teaching or school of medicine as such. Each expert has his own individual views, which are often at complete variance to those of his professional confrère next door. As a means of stimulating the critical faculty of the student such a course is eminently exhilarating; but as carried out at Glasgow University the method borders upon the ludicrous, for it is partly unconscious.

The reason for this is as follows. As medicine has progressed, additional subjects have been added from time to time, but the relatively "prehistoric" subjects have not been excised to meet the needs of modern organisation. The result is that the course has become conjested to a degree, with a chaotic patchwork of subjects, mediæval and modern. Naturally the professors, though they might be willing to sacrifice some of their individuality for a common and good cause, become weary of trying to combine to work a scheme of study that has become obsolete, so each gives up the task as hopeless, and throws himself with whole-hearted enthusiasm into his own particular subjectwith alarming results to the budding brain of the average student. Germany beat France in 1870 by system, by the intelligent correlation of the isolated Army Corps. Mediocre co-ordination will always defeat isolated genius, in the long run. Our University must, therefore, keep abreast of younger Let us now consider some aspects of this important subject in a little more detail and without fear or favour or malice.

Particular Defects. Botany and Physics. The student starts in the fulness of his youthful enthusiasm with the subject of Botany. It bespeaks the ability and energy of the Professor in charge that the same student takes a sad farewell of the subject, under the full conviction that in learning the various layers of the tree trunk and in conning over the Latin names of groups and sub-groups, he is somehow alleviating the sum of human misery. No doubt Botany teaches the use of the microscope and section cutting, but these are taught fully in Zoology, Physio-



logy and Pathology. No doubt Botany teaches observation, but the same could be said of Geology, and in any case it would be better for the student to spend his time at clinical observation in the dispensaries. We disclaim the idea, too, that any of us were "ploughed" in Botany. It is interesting to Q.M. students, the hill expeditions were magnificent, and they should be retained by the medical reorganiser in order to let a man know the other members of his year, but the truth must be told, as a practical medical subject it is a relic of the middle ages. Physics is, at present, almost as useless. We are not prepared to deny that a three months' course in the main and medically practical principles of heat, fluids, sound, light and electricity would not be of interest as a general subject. But to spend most of the time with dynamics, the speed of falling bodies and other futilities may be good engineering, but is uncommonly bad medicine.

Astrology was once a sine qua non in the medical Question of curriculum, and if the authorities are looking for a general medical subject, it is always open to them to choose it or Botany or Dynamics, Geology or Arabic or Astronomy. But, really, is it not high time to recognise that the medical curriculum has overshot them all? If a general medical subject is absolutely necessary for the teaching of English, why not institute a chair of History of Medicine, in order to reveal to the students the various steps of past discoveries and the lines and logical process for future research.

Zoology and Chemistry stand in quite a different category, for the first is the basis of Anatomy, and a knowledge of the second is indispensable in modern Physiology. In any case it is advisable to transfer the time spent on the first two subjects to Zoology and Chemistry for two reasons:-(1) a grip of two subjects is preferable to a smattering of four: for instance, no medical student should be allowed to pass Zoology without having at least listened to Professor Graham Kerr's advanced lectures on Comparative Anatomy. (2) the medical student should have passed all his first subjects after one year, if he is to do justice to the rest of his course; to show the hopelessness of the present position, students of from six months to two years standing undertake

a general subject.

Zoology and Chemistry.

dissection, but are unable to perform their Anatomy properly, as they have not completed the subjects of their first professional. So much for the first.

The correlation between the "twin subjects" and Clinical work.

The writers hold that theoretical medical instruction is practically useless except in correlation with the living subject. Yet long before the student takes up his clinical work with any seriousness, he finds himself deeply immersed in all the detailed complexities of Embryology, Anatomy and Physiology. This is the period when the average man wastes most time. Quite unable to see his way through what seems to him the darkness, he abandons himself for a whole year (or longer) to the exuberant joys of dances and socials, till his revered parent begins to suspect why the "class fees" have risen so high. The student should be compelled to attend hospital at the beginning of his second winter. Compare the London school: there the men are obliged to attend Anatomy and Physiology classes in the morning and devote their afternoons, almost entirely, to their real lifework. Two hours hospital and one hour dispensary should be the minimum. With this practical training to guide his theoretical and laboratory in the twin subjects of Anatomy and Physiology, the average man will not be likely to overdo socials in the next two years. The hospital must be worked concurrently unless the second year is to be in large measure wasted. Again, the medical reorganiser should arrange that Anatomy, which is the most important subject in the 2nd Professional and perhaps in the entire curriculum, should be allocated more time than is accorded to Physiology. Again, the class of applied anatomy should be made compulsory, and the Anatomy pass should include at least an oral (if not a paper) on that subject. Applied anatomy is the basis of all clinical work, medical and surgical: at present it is left pretty much to chance.

Intellectual darkness.

As the course proceeds the intellectual congestion increases. Sometimes, indeed, the student feels as if lost in a maze. He is asked to "get up" detail after detail, but the why or wherefore is seldom vouchsafed: he is seldom taken up to view the promised land: he works, like a mole, in the dark. We have often wondered why the principles that govern and distinguish the Glasgow course are not

explained in pamphlet form to the student at the beginning of his career; for instance, it could give a short description of our leading hospitals and how they are worked, and how all the different studies lead up to the clinical goal. Why hide our light under a bushel? The reason that such a pamphlet is not issued is that no such correlated scheme exists. We shall now proceed to state some of the more glaring anomalies of the latter half of the curriculum.

Overlapping is a mistake. Yet we are taught Bacteriology Overlapping. in Pathology, and again Bacteriology in Surgery. As everyone knows, the subject should be treated in neither of these classes. If the professors of these subjects were given a free hand, Bacteriology would form a practical laboratory course by itself. The veriest tyro knows that the development of modern Bacteriology is such as to necessitate the appointment of a special lecturer on the subject. This is one example of overlapping.

The class of Materia Medica stands absolutely out of relation to its subject, Medicine. In the last few decades the new subject of experimental pharmacology has grown more and more complicated, and yet appears to be still in its infancy, especially when reviewed in connection with the recent developments of serum therapy. Experimental pharmacology is also of the utmost importance to the student, not merely from its inherent interest but from its stimulating effect on the mind. To be shown how his predecessors have gradually experimented their way to our knowledge of the actions of drugs is bound to make a man think. Such a training would enable the student to comprehend the truth that if the medical man does not approach his cases in the true spirit of research he might as well have apprenticed himself to a plumber or a cabinetmaker for all the benefit his college course has been to him. A thorough review of this experimental work could be made of the utmost use to the students in the hands of such a teacher as Professor Stockman, and it would be more than enough for a six months' course, under the heading of Medicine A.

What happens at present? Pharmacology (the action of drugs) and Materia Medica (the manifold varieties of drugs

Pharmacology, Materia, and Medical Anomalies.

and their dosages) are thrown into one, and the combined subject then made to include the treatment of disease by drugs (an item that properly belongs to Medicine B). present, therefore, we are obliged to take the treatment of disease exactly one year before we come to the art of diagnosis and description of disease. We object to diseases being described at all, but if we must have the descriptions, pray give us them first. To teach us the treatment before ever we know what the diseases are or how they are to be diagnosed is as ludicrous as to put the cart before the horse. The authorities must have had a suspicion that something was wrong or they would not have post-dated the time for sitting the Materia examination. But a little plastering here and there is of no avail; it is not the superstructure but the foundation of the edifice that is weak. It is not so much new regulations as logical thinking that is wanted.

Dissociation of Pharmacology and Materia Medica.

As was already noted, the authorities will in any case soon require to dissociate Pharmacology from Materia Medica owing to the growing complexities of the former subject. Apart altogether from the practical necessities, however, it is clear that Pharmacology is really part of a student's purely theoretical training. Whereas the discussion of the different forms of drugs, and more especially their administration, belong rather to the practical methods of medicine. The subjects ought therefore to be dissociated. Materia Medica is now taught in the third winter of his course: it should, instead, be taken during the ensuing summer, in conjunction with the class of practical pharmacy. If Pharmacology had been treated in the winter, the next summer would suffice for Materia Medica and practical pharmacy. This would be a good thing, for it would keep the student's mind in touch with his drugs for 18 months on end, thus:—a man could take Pharmacology in his third winter, sit Anatomy and Physiology at the end of the same winter, take Materia in the summer and sit in the autumn, and then come into touch again with drugs (the application of them) in the fourth winter in the class of Medicine B.

This class of medicine (which we have entitled Medicine B) should include nothing but the following subjects:

- (1) Methods of diagnosis, including an exhaustive description of clinical instruments and their application.
- (2) Clinical signs and symptoms, with their pathological rationale.
- (3) General treatment, and particular treatment of particular diseases by means of drugs; *i.e.* the diseases should be grouped under the headings of the drugs and considered accordingly (as is now done a year too soon in Materia).
- (4) A description of those few diseases that are more common elsewhere than in Glasgow.
- (5) General principles (last of all).

Medical instruments are at present dismissed with the remark, "You will get all that in the clinics." We may, we may not. It all depends who the chief of our clinic happens to be. For example, the writers can use the ophthalmoscope; but if we were asked to explain anything more than its main principle we would collapse. A medical curriculum is not complete that leaves a discussion of clinical methods to chance. Would all this be enough for a six months' course? Enough! Why, an adequate discussion of the diagnosis of nervous diseases alone would occupy at least a month. "But," cries the bookworm, who has developed his note-book at the expense of his eye, "there will be no time left for a detailed description of the various diseases themselves, no time for my spoon-feeding." This question brings us to the central point of this article.

We challenge the present Glasgow, Edinburgh and other systems, in so far as they are purely academic and theoretical, as unscientific and bad, as likely to produce bookworms and "swotters," and as foredoomed to failure as instruments of medical teaching. If a man wishes academics pure and simple, let him take arts. Theoretical medicine! Theoretical surgery! They are contradictions in terms. Let no one construe this as a diatribe against the present occupants of the medical and surgical chairs. The reverse; for it was the ideas of these same professors that led up to the conception of this article. The professors' position, and ours, is as follows:

The System unscientific and unsound

Medical teaching, no matter how good, is not worth a straw if divorced from clinical work. The teaching must be on the patient: either the patient must be brought into the class, or the student must go to the bedside. In short, the only scientific line in medical teaching is to train the eye along with the ear, indeed to train the eye first and the ear afterwards. The proper sequence in medical training is (1) Observation, (2) Deduction, (3) Confirmation, (4) Correlation. This is also the historical order in which the original researches were made.* There was no short cut or "boiling down" then, and there should be none in the mental training now. Hitherto it has been assumed that the first part of the training could be safely dispensed with in theoretical medicine and surgery. There can be no more vital mistake; for bald facts and conflicting theories (even though they relate to practical medical points) leave but the vaguest imprint on the mind. To put it bluntly, a medical lecture is but verbiage, in at one ear and out at the other, if it is not preceded by practical demonstration. It may be brilliant, but it is, so to speak, left hanging in the air. When we come to the final or to some difficult case, we are forced to rely not on our auditory but on our visual memories and associations; and the reason is plain—the eye mediates our own experience, the ear gives us chiefly the experiences of other men. Note, we do not despise theoretical instruction in itself: for groundwork, for weaving a scientific meaning into facts, for the description of methods, it is wholly good. whole attitude may be summed up in the statement: Theoretical instruction on a patient is superior to theoretical instruction by itself. If this be true, and if clinical material is available (as it is), it follows that to hold theoretical classes at the University and to describe the history, etiology, symptoms, diagnosis, prognosis and treatment of a disease without the case in point is not merely unscientific, but is an entire waste of precious time: "Omne

^{*} Instance the discovery of Asepsis. Semmelweiss observed how sepsis was obviated by washing the hands; Pasteur observed how decomposition of fluids was prevented by the exclusion of air. "Germs" was the deduction. The findings of Bacteriology have been the confirmation.

Lister (in the Glasgow School) correlated and associated the nascent idea to the practice of surgery.

ignotum" inutile est. We quite admit that the student should obtain theoretical instruction in these diseases which he is not likely to encounter in hospital or dispensary practice, e.g., some diseases are perhaps commoner in England than in Scotland. But all this could be undertaken within a fortnight. The scope of clinical work is, however, not limited to these few diseases: it is extended to include the entire panoply of modern medicine. In striving to do everything it becomes impossible to do anything thoroughly. If the aim of our teaching is to turn out men who shall be able to put the ideas of other men on to paper by a combination of memory and ink, then spoon-feeding is the ideal; but if our aim is to turn out men who will think for themselves, then we are on the wrong track. (Incidentally, even though the clinical "material" is abundant, it is perfectly preposterous that the professors of medicine and surgery should not have free call upon every available patient in the Western Infirmary. They are tied down more or less to the patients under their own personal supervision. The Continental Universities manage it otherwise.)

As Herbert Spencer has said:—" Education is to prepare us for complete living." The knight-errant of old was sent out to fight disease and death with a sword. But he was first trained to use it: the sword then became a detail. The success of our training may be measured by our knowledge of clinical diagnosis and clinical treatment; these should therefore form the main subjects even of theoretical instruction. In other words our theoretical classes should take up nothing but the methods of physical examination, the methods of diagnosis, the pathological explanation of clinical phenomena and the various methods employed in the treatment of disease: i.e., everything to do with methods. Therefore it seems essential for the promotion of Glasgow

The Modern Outlook.*

Professor Norman Harris has recently described the signs of an evolutionary trend in the study of medicine. "The very powerful lever that has elevated medicine from the dust of empiricism to the cloud-level of science" rests "on the fulcrum of ascertained facts." He demonstrates how, both in Germany and in the United States, the ward (the clinical laboratory) is becoming more and more the medium of instruction.

Our University has always led the way in clinical work. To keep us in the fore-front of this world-movement, therefore, no reversal of Glasgow methods is required, but merely an acceleration of present tendencies, a further assertion of our own individuality.

medical fame to cut out the theoretical classes of surgery and medicine in so far as they attempt to elaborate the text books. This might prove a difficulty for the student, but it is better to have a difficulty than a stumbling-block. The Glasgow student would then be told that he must read his own text-books on medicine and surgery along with his hospital cases and clinical teaching: the authorities would then impress on him that this "hospital reading" must be his chief concern in working for the final, and that he must stop taking notes if he finds them interfering with this. his life work. The effect of this self help on the mind of the student should not be forgotten, either; he would cease to be a mere intellectual drudge, he would have time to apply his brain to the study of medicine. The present writers were not over-conscientious; they found, however, that the more conscientious a man was with his academic work the less time he had for his own reading. After all our classes and preparations for class examinations we felt "about fedup"; any reading we managed on our own account was only at the tail end of our notes. Now, a professor is one who knows the most recent literature: his cue is to tell his students, "Don't trouble your heads about my notes, you will get all that in any decent text-book. But to-night you will please read So-and-so on the same subject. My views are not his, but you should know them." Many men receive degrees who have never done a page of reading for themselves: at present the authorities put a premium on that sort of thing. With the greatest deference and respect we would advance that the function of a professor is not so much to teach the student as to help him to teach himself. It is further the bounden duty of every professor of the preliminary stages to go out of his way to explain the practical applications of his subject in relation to the cure of human disease. Broadly speaking, the Scottish system begins and ends with pure teaching: the Oxford and Cambridge courses aim at stimulating the mentality and consciousness of the individual. Even the Germans, with their love of academic system, recognise the truth of this idea: for they do not compel the student to attend any theoretical classes at all. But is German science behind

ours on that account? By all means give theoretical instruction, but surely a thorough training in Zoology, Chemistry, Anatomy (pure and applied), Physiology, Pharmacology, Materia Medica, Pathology, Bacteriology, Clinical diagnosis and treatment, and Operative Surgery is quite sufficient theoretical training for the mind of one student. The addition of further theoretical courses is, we believe, simply a sign of weakness, a tacit acknowledgment that the above courses have failed to attain the end they had in view.

Some may be inclined to support the status quo under the mistaken notion that it is "ideal"; it may be urged that our position is too utilitarian. We might reply that utilitarianism is not necessarily immoral (as noted by Norman Angell in another connection). But our view is not based on utilitarianism at all, but on a scientific idealism. There may be a pure science of medicine, but Pure Science (i.e., arguing from the general to the concrete) is relatively sterile as a means of mental instruction.

The true line of teaching is followed by the present Professor of Surgery. Dogma is the antithesis of mental freedom. It is on a recognition of this truth that the great success of his clinical course depends. Its value would have been trebled if the curriculum had recognised applied anatomy as it should. On looking back we have no hesitation in saying that the professor's method of question and answer was the most stimulating thing in the whole Glasgow course. Yet it shows the strength of a system that even the spirit of our surgical teaching has been warped by the regulations. Set lectures are still given on surgical diseases, and operative surgery is taught in the theoretical class without the presence of a subject. The whole of text-book surgery should be taught in the clinic and by home reading. Operative surgery is quite another matter: it can only be taught in a class devoted to the subject. The less operative the student has done, the more helpless does he feel. He should therefore get a lot of it. It is a splendid means of keeping the anatomy fresh, for it is full of practical points: it should therefore be taken immediately at the back of applied anatomy. Mirabile dictu! the very class on which most time should be spent in set surgical lectures is

Our attitude not utilitarian

Application to Surgery.

the least provided for in the Glasgow curriculum. So much is this the case that large numbers of men attend Anderson's College for operative work and pay double fees voluntarily. Would they do so if they thought the University course complete? The authorities should dispense with theoretical surgery and should substitute a new class of surgery with—

- (1) A four months' course in operative surgery, including a full discussion of all the instruments and methods of clinical examination and the relationship of operative to clinical work.
- (2) A two months' course in the rarely seen diseases and the general principles of surgery (last of all).

It is no secret that the present system is anathema to the great majority of the medical professors. They know, we all know, that the only sequence of medical organisation is to follow the attitude of a student at the bed-side—

Sequence of Curriculum.

- 1. Groundwork.
- 2. Diagnosis of clinical methods.
- 3. Diagnosis by laboratory methods.
- 4. Treatment.

Details of same.

We do not wish to ride off on negative criticism. In all humility might we suggest the outlines of an arrangement to correspond to the above sequence (our experience is Scottish, English and Continental):

ıst Year—

Physics (three months' course: no examination).

Zoology and advanced comparative zoology.

Chemistry (three months inorganic and six months organic).

Dispensary.

and Year-

Dispensary.

Clinical surgery.

Anatomy (theoretical and practical).

Physiology (theoretical and practical).

3rd Winter-

Clinical surgery.

Anatomy (practical and applied).

Physiology (practical).

Medicine A (i.e., experimental pharmacology).

Ensuing Summer—

Clinical Medicine.

Materia Medica, and practical pharmacology.

4th Winter-

Clinical Medicine.

Medicine B (i.e., methods of examination and diagnosis, general treatment and varieties of drugs).

Pathology.

Bacteriology (laboratory course).

Surgery (surgical anatomy and operative, and general principles).

5th Year—

Clinical surgery and clinical medicine.

Outdoor housemanship for first six months.

Midwifery, Gynæcology (practical course).

Preparation for final.

The more obvious advantages of such a course are: - Advantages

of same.

- (1) The student has some chance of passing his first subjects before he enters anatomy.
- (2) Such a system would prevent a man wasting time, it would keep him off his final subjects till he had passed his second Professional. Many men are so left to themselves as to take theoretical Medicine or Surgery in their third winter, under the idea of getting the unpractical work over early. They gradually discover they might as well have been playing cards in the Union; for they have neither the time to work the class nor the experience to understand it.
- (3) It provides a continuous and logical sequence both upon the surgical and the medical sides. Every student should, of course, be compelled to take clinical surgery first, as being less subtle and more objective than clinical medicine—
 - A. ON THE SURGICAL SIDE: dispensary, anatomy, applied anatomy, pathology, operative surgery and up to general principles.
 - B. ON THE MEDICAL SIDE: dispensary, physiology, pharmacology, materia medica, diagnosis, treatment and general principles.

- (4) Even this simplified course gives the student too much to do, when one remembers all the accessory classes he has to attend. But it would leave the 5th year almost free, which the present curriculum aims at but does not attain. It would allow of the student apprenticing himself as an outdoor houseman prior to the last lap of the final. This could be easily arranged, for there are places in the three hospitals available for all the men at each final. Every Glasgow man would then be equipped contra mundum.
- (5) It allows for the future developments of medicine. In spite of ultra-academic training and pre-historic grooves the Scottish student usually wins out all right. But it is due to his clinical work, his common sense and the saving grace of humour. It is the simple truth, and at the same time the severest condemnation of our system, that the more a man has leant on his academic course the more patients he will injure and the more he will have to unlearn after he passes. Happily he usually comes under the influence of far-sighted clinical teachers, many of them working without much recognition in the dispensaries and clinics.

We reiterate (1) the academic course (with its hideous class examination system) is useless in so far as it is divorced from clinical work, and 25% of the Glasgow course is so divorced.

- (2) The system is not based on logical thinking, and is therefore unscientific and wasteful of time.
 - (3) Our Professors consider it far from ideal.
- (4) The richer our medicine, the more congested and hopeless will things become. In other words, as the science of medicine progresses, so will the value of our Glasgow degree retrogress. This is what knocks out the old selfish argument, "What was good enough for me is good enough for them." For medicine does not, like the curriculum, stand still. Bacteriology and Gynæcology will soon be blossoming out as full subjects, and in all likelihood the only answer of the authorities will be to tack on another year to the course. The present process is a vicious circle, and every year we are pressing more and more new wine into the

Confusion worse confounded

old bottles of our unreformed curriculum. The result is Scriptural and sure.

We honour Glasgow University. It is because we feel its honour to be lowered and its influence needlessly depressed that we have spoken in somewhat pessimistic terms. We have touched upon some of the points that the average student condemns, and we have naturally not referred to the many points that appeal to him in our Glasgow course. We honour our Professors and firmly believe our course to be the best in Scotland, and we know that our University is wakening up. After all, Glasgow is a business-like city, and interaction with the College is to be expected.

It may take five years or fifty, but the authorities will have The Solution. no difficulty with the matter when they choose to take it up. All they need do is to call a round-table conference of the eight Professors of the purely medical 2nd, 3rd and 4th year subjects, give them full powers for re-organisation, and all will be well.

Till then our main contentions hold good. If they are false, it is for the authorities to answer the student's question:—

"What prevents the Glasgow Degree from Becom-ING THE FIRST IN BRITAIN?"

Even from the pecuniary point of view the status of his degree is of prime importance to the student. We take the liberty of suggesting, therefore, that the Secretary of the Glasgow University Union call a mass meeting of the medical students to discuss and vote on the main lines of this proposition. We are without fear as to the result, if only they drop individual fads and for once resolve on united action. The ball is now centred; we leave it in the hope that some day in the distant future it will be carried up the field. Let the Glasgow motto be, "Back to Lister."

